

Name Key

Date \_\_\_\_\_

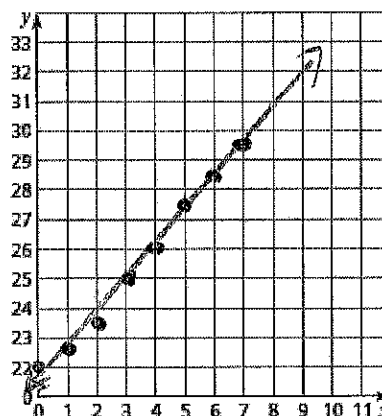
## 291 Chapter 2.5 Homework

1. Your science class has a baby alligator. Each month, you have been measuring its length. The table below shows the measurements since September.

|                   |           |      |      |      |      |      |      |       |
|-------------------|-----------|------|------|------|------|------|------|-------|
|                   | September |      |      |      |      |      |      | April |
|                   | ↓         |      |      |      |      |      |      | ↓     |
| Month, $x$        | 0         | 1    | 2    | 3    | 4    | 5    | 6    | 7     |
| Length (in.), $y$ | 22.0      | 22.5 | 23.5 | 25.0 | 26.0 | 27.5 | 28.5 | 29.5  |

Use the following steps to predict the baby alligator's length next September.

- Graph the data in the table.
- Draw the straight line that you think best approximates the points.
- Write an equation of the line you drew.
- Use the equation to predict the baby alligator's length next September.



decimal  
 $y = 1.13x + 21.63$

2. The table below shows the number of active woodpecker clusters in a part of the De Soto National Forest in Mississippi.

|                 |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|
| Year            | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Active Clusters | 22   | 24   | 27   | 27   | 34   | 40   | 42   | 45   | 51   |

- Graph the data from the table. Represent the x-axis as the number of years since 1990. (So, the first  $x$  value is 2 not 1992.) (use graph paper)
- Draw the line of best fit.
- Write the equation of the line of best fit.
- Explain the meaning of slope for this data.
- Use the equation to determine the number of active clusters in the year 2016.

See graph paper

c.  $y = 3.81x + 11.76$

d. Every year there are 3.81 more clusters

e. 110.82 active clusters in 2016

3. The table below shows the total fat (in grams) and the total calories in 12 restaurant sandwiches.

|             |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Fat (grams) | 10  | 12  | 17  | 22  | 26  | 27  | 29  | 30  | 33  | 39  | 42  | 44  |
| Calories    | 420 | 470 | 400 | 510 | 510 | 510 | 545 | 600 | 645 | 610 | 740 | 795 |

- Graph the data from the table (use graph paper)
- Draw the line of best fit.
- Write the equation of the line of best fit.
- Explain the meaning of slope for this data.
- Use the equation to determine the number of calories when the total fat is 50 g.

c.  $y = 11.25x + 255$

d. 11.25 calories in each gram of fat

e. 817.5 calories

4. The table below shows the average U. S. movie ticket price by year.

|       |        |        |        |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Year  | 2000   | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   |
| Price | \$5.39 | \$5.65 | \$5.80 | \$6.03 | \$6.21 | \$6.41 | \$6.55 | \$6.88 | \$7.18 |
| Year  | 2009   | 2010   | 2011   | 2012   | 2013   |        |        |        |        |
| Price | \$7.50 | \$7.89 | \$7.93 | \$7.96 | \$8.13 |        |        |        |        |

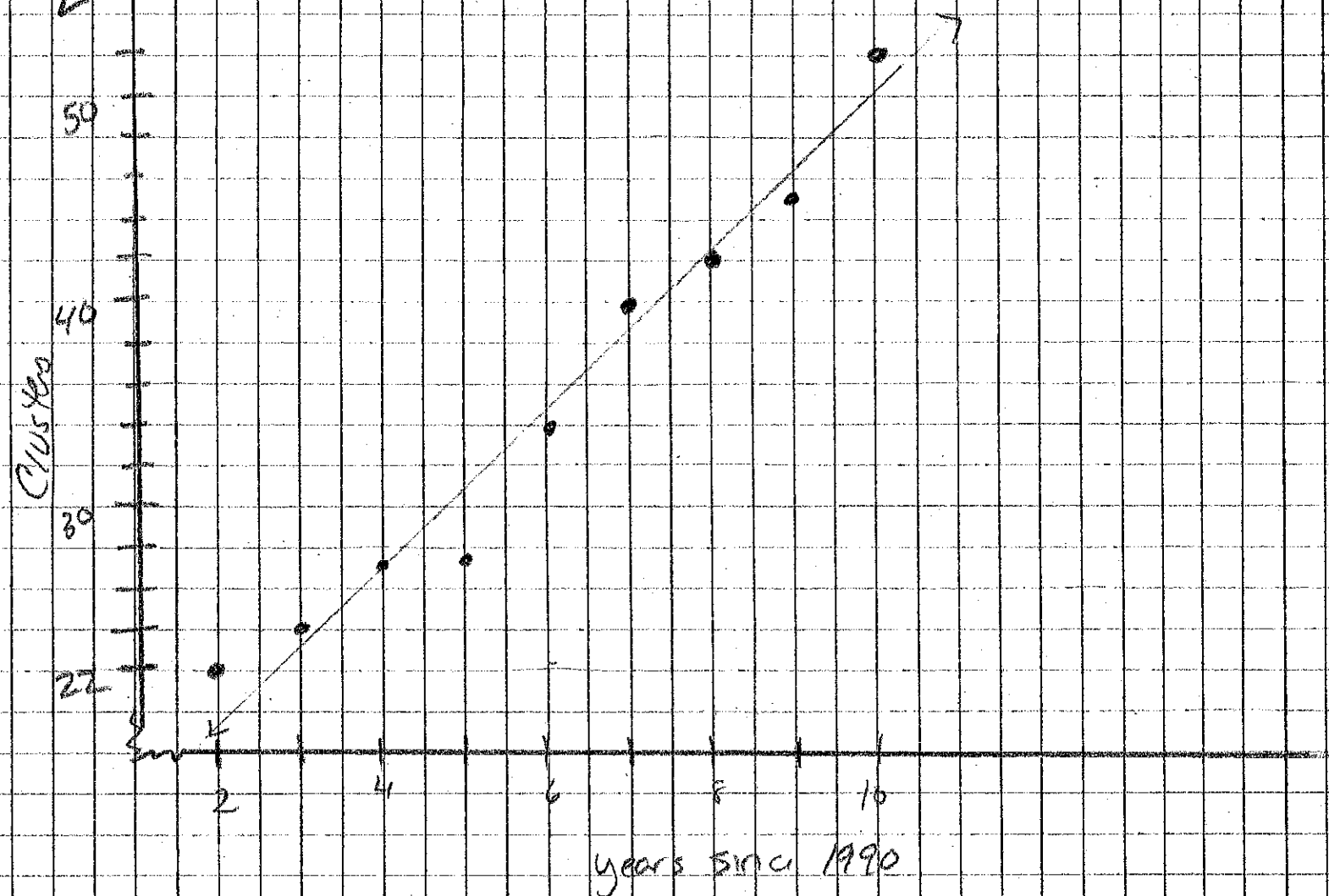
- Graph the data from the table. Represent the x-axis as the number of years **since 2000**. (So, the first x value is 0 not 2000.) (use graph paper)
- Draw the line of best fit.
- Write the equation of the line of best fit.
- Explain the meaning of slope for this data.
- Use the equation to determine the price of a movie ticket 2020.

c.  $y = .25x + 5.15$

d. Every year prices go up about 25¢.

e.  $y = .25(20) + 5.15$   
\$10.15 in 2020

2.



$$(4, 27) \quad (9.5, 48)$$

$$m = \frac{48 - 27}{9.5 - 4} = \frac{21}{5.5} = 3.81$$

$$y = 3.81x + b$$

$$27 = 3.81(4) + b$$

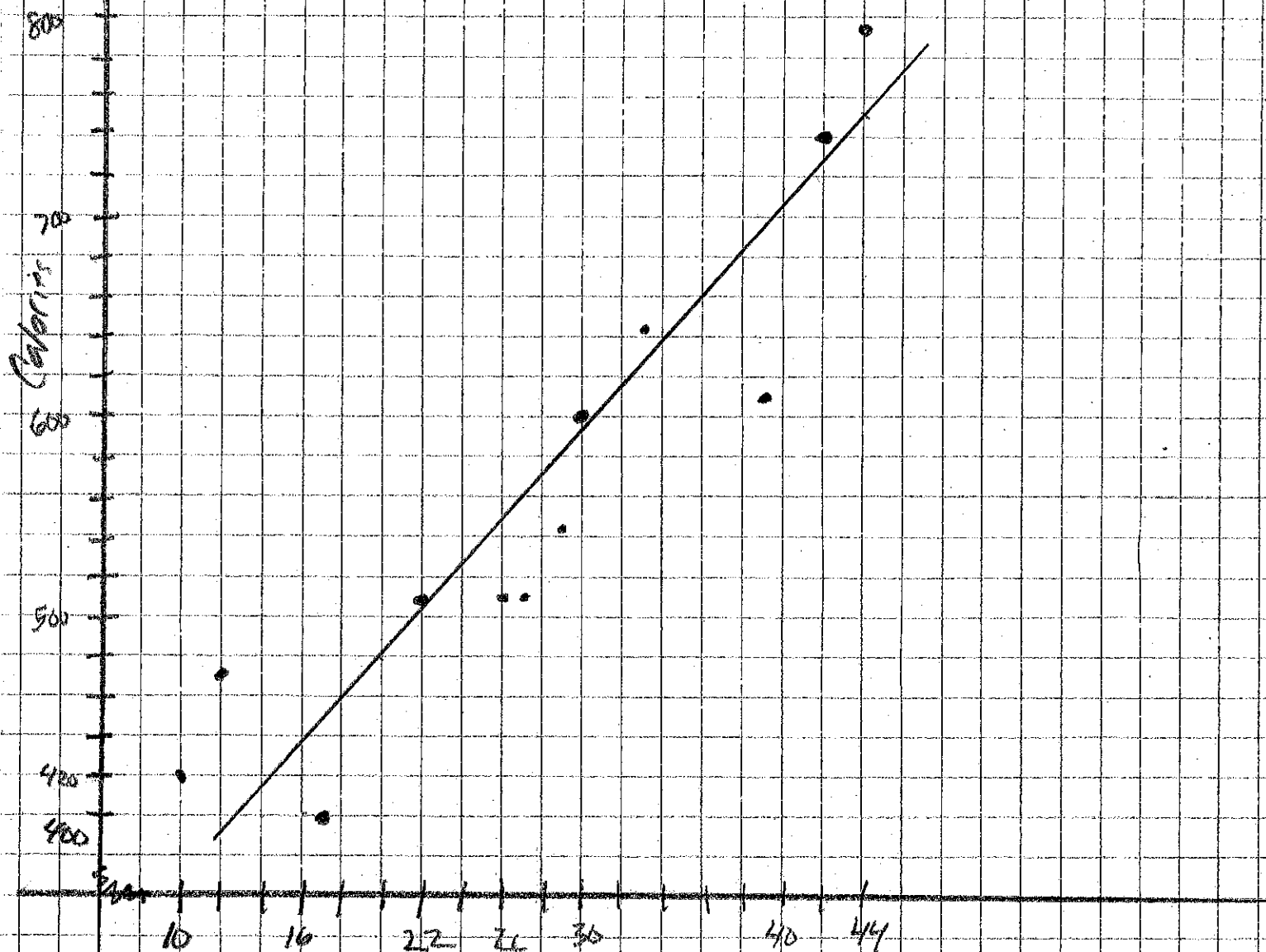
$$11.76 = b$$

$$y = 3.81x + 11.76$$

$$y = 3.81(26) + 11.76$$

110.82 Active Clusters

3.



(44, 750)

(20, 480)

Fat (g)

$$m = \frac{750 - 480}{44 - 20} = \frac{270}{24} = 11.25$$

$$y = 11.25x + b$$

$$750 = 11.25(44) + b$$

$$255 = b$$

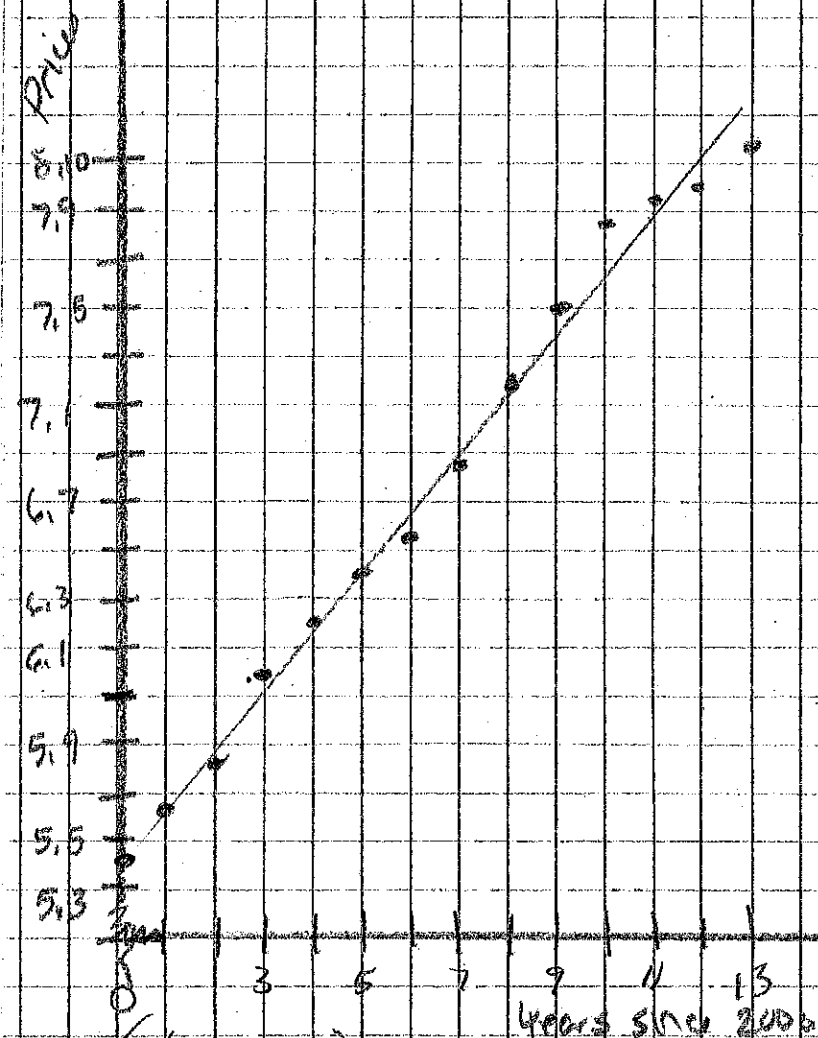
$$y = 11.25x + 255$$

e.

$$y = 11.25(58) + 255$$

817.5  
calories

4.



(11, 7.90)

(5.5, 6.50)

$$m = \frac{7.9 - 6.5}{11 - 5.5} = \frac{1.4}{5.5} = .25$$

$$y = .25x + b$$

$$7.9 = .25(11) + b$$

$$5.15 = b$$

$$y = .25x + 5.15$$

c.

$$y = .25(20) + 5.15$$

\$10.15 in 2020

2911

2.5 HW on calc

Diagnostic  
↓ on

$$1. \quad y = 1.14x + 21.6$$

35.3 in

$$r^2 = .992$$

$$r = .996$$

$$2. \quad y = 3.7x + 12.47$$

$$r^2 = .969$$

$$r = .984$$

$$3. \quad y = 10.06x + 285.5$$

$$r^2 = .849$$

$$r = .921$$

$$4. \quad y = .22x + 5.36$$

$$r^2 = .985$$

$$r = .992$$